

SAN FRANCISCO

PUBLIC UTILITIES COMMISSION

CONSTRUCTION SITE RUNOFF CONTROL TECHNICAL STANDARDS AND GUIDELINES

FEBRUARY 2014

CONTENTS

1

INTRODUCTION	5
1.1 Summary	6
1.2 Background	7

2

REGULATIONS.....	9
2.0 Regulations	10
2.1 Construction Site Runoff Control Ordinance ...	11
2.2 State of California Construction General Permit.....	12

3

COMPLIANCE WITH THE CONSTRUCTION SITE RUNOFF CONTROL ORDINANCE.....	13
3.1 Application Requirements.....	14
3.2 Permit Application Process.....	15
3.3 Technical Standards	18
I. ESCP Preparation	18
II. Contractor/Subcontractor Responsibilities.....	18
III. Common Practices	18
IV. Rainy Season Standards	20
V. Special Grading Standards.....	22
VI. Self-Inspection	23

4

PREPARING THE EROSION AND SEDIMENT CONTROL PLAN	25
4.1 Erosion and Sediment Control Plan Purpose... ..	26
4.2 Erosion and Sediment Control Plan Principles.....	27
4.2 Elements of an Erosion and Sediment Control Plan	28
I. Site Conditions	28
II. Project Description and Construction Activities	28
III. BMPs and Implementation Schedule.....	28
IV. Site Plan.....	28
V. Maintenance and Inspection	29
VI. Final Statements	30

5

REFERENCES	31
-------------------------	-----------

6

FORMS	33
--------------------	-----------

STANDARDS AND GUIDELINES



INTRODUCTION



IN THIS SECTION:

- 1.1 Summary
- 1.2 Background

1.1 SUMMARY

The *Construction Site Runoff Control Technical Standards and Guidelines* (Guidelines) is intended to provide information to property owners and contractors alike about soil erosion and sediment control, good housekeeping, and spill prevention at construction sites. The Guidelines serve as a technical resource for meeting the requirements of the Construction Site Runoff Control Ordinance (Ordinance) (Section 146 of Article 2 of the Public Works Code). The Ordinance will be implemented through the Construction Site Runoff Control Program currently in place and managed by the Collection System Division for the San Francisco Public Utilities Commission (SFPUC), Wastewater Enterprise.

This document presents standard practices that will prevent or correct sediment and erosion control problems on construction sites. This technical guidance also refers to San Francisco's *Construction BMP Handbook* (SFPUC 2013) for more detailed information on best management practices (BMPs) with regard to standard design, maintenance, and operation. The Guidelines are intended to serve as a resource for compliance with the Ordinance; however, implementing the Guidelines does not relieve the user of the responsibility of complying with other laws and regulations.

Section 2 examines stormwater quality and the impacts of construction site runoff. Section 3 presents a summary of regulations pertinent to stormwater regulations and construction activity. Steps to comply with the Ordinance are presented in Sections 3 and 4.

Checklists and forms are found in the appendices.

Acronyms and Key Terminology Used in the Guidelines

BAT/BCT	Best Available Technology/Best Conventional Technology
BMP	Best Management Practices
CASQA	California Stormwater Quality Association
CGP	Construction General Permit
ESCP	Erosion and Sediment Control Plan
Guidelines	Construction Site Runoff Control Technical Standards and Guidelines
NOI	Notice of Intent
Ordinance	Construction Site Runoff Control Ordinance
QSD	Qualified SWPPP Developer
SFPUC	San Francisco Public Utilities Commission
SWPPP	Stormwater Pollution Prevention Plan

1.2 BACKGROUND

When it rains or snows, part of the precipitation is captured by plants or infiltrates into the ground, and the remainder flows over land as stormwater runoff to the nearest ditch or creek. In urban areas, natural land cover is replaced with impervious surfaces such as streets, parking lots, and rooftops, resulting in increased stormwater runoff (Figure 1). Stormwater that flows over the land surface picks up potential pollutants such as

- Sediment
- Nutrients (from lawn fertilizers)
- Bacteria (from animal or human waste)
- Pesticides (from lawn and garden chemicals)
- Metals (from rooftops and roadways)
- Petroleum by-products (from leaking vehicles)

Construction sites can be significant sources of sediments, trash, and chemicals. Land-disturbing activities—land clearing, grading, building demolition, stockpiling, excavating, and earth moving—expose loose sediment, which increases erosion and sedimentation.

Construction activity may also introduce other pollutants, such as metals, fuels, paints, solvents, sawdust, mortars, and other debris. These materials and metals bind to sediment, which can then be transported offsite by runoff and wind and washed into storm drains or catch basins during rainy weather. Beyond water quality concerns, contaminated sediment and debris from construction can create local flood hazards by reducing the flow capacity of storm drains and combined sewer systems. These sediments are abrasive and can degrade the pump stations in the sewer system, increasing maintenance costs.

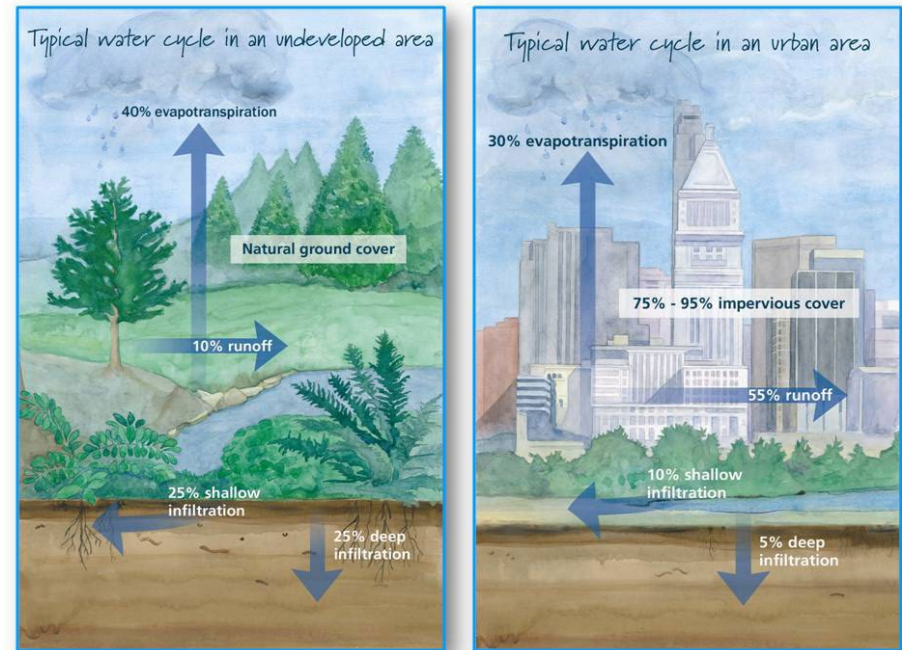


Figure 1. Comparison of the water cycle in undeveloped (left) and developed (right) areas.

Uncontrolled stormwater runoff from construction sites may cause up to 15 times the amount of sediment and up to 100 times the natural background level of erosion than a site with stormwater BMPs (SFBRWQCB 2002, CASQA 2003). Implementing and maintaining effective BMPs and practicing good housekeeping protect local waters from the impacts of construction site runoff.

STANDARDS AND GUIDELINES



REGULATIONS



IN THIS SECTION:

- 2.1 Construction Site Runoff Control Ordinance
- 2.2 State of California Construction General Permit

2.0 REGULATIONS

Local, state, and federal agencies have three compliance categories aimed to reduce pollutants in stormwater and protect water quality. For construction sites within the City and County of San Francisco, different regulations apply to property owners and contractors depending on the amount of disturbed area on the construction site and whether the site is located in the

Combined Sewer Area or Separate Sewer Area. Construction regulations and their applicability are shown in Table 1. Depending on the amount of land area disturbed by your project, you may be required to comply with the City's Construction Site Runoff Control Ordinance, the State's Construction General Permit, or both.

Table 1. Determine Which Construction Regulations Apply to Your Site

Amount of Area Disturbed	Construction Activity that Discharges to the Municipal Separate Storm Sewer System	Construction Activity that Discharges to the Combined Sewer System
Projects disturbing 1 acre or more	<p>You need to comply with the State's Construction General Permit and the City's Construction Site Runoff Control Ordinance:</p> <ul style="list-style-type: none"> • Prepare a SWPPP and submit a Notice of Intent to the State (for more information, see the State CGP Website) • Submit a Construction Site Runoff Control Permit Application to SFPUC (see Sections 4–6) 	<p>You need to comply with the Construction Site Runoff Control Ordinance:</p> <p>Prepare an ESCP or SWPPP (see Section 5)</p> <p>Submit a Construction Site Runoff Control Permit Application to SFPUC (see Sections 4–6)</p>
Projects disturbing between 5,000 ft² and 1 acre	<p>You need to comply with the Construction Site Runoff Control Ordinance:</p> <ul style="list-style-type: none"> • Prepare an ESCP or SWPPP (see Section 5) • Submit a Construction Site Runoff Control Permit Application to SFPUC (see Sections 4–6) 	
Projects disturbing less than 5,000 ft²	<ul style="list-style-type: none"> • You do not need to apply for a Construction Site Runoff Control Permit • To prevent pollution from your construction site, follow the Common Practices presented in the Technical Standards section of this document (Section 4.3) 	

2.1 CONSTRUCTION SITE RUNOFF CONTROL ORDINANCE

Owners and operators of construction sites that disturb 5,000 square feet of land or more need to comply with San Francisco's Construction Site Runoff Control Ordinance. The purpose of the Ordinance is to protect water quality by reducing erosion and controlling the discharge of sediment and other pollutants from construction sites.

The Ordinance codifies existing standard construction practices and requires any person performing land-disturbing activities to implement and maintain BMPs to control construction site runoff, erosion and sedimentation. The Ordinance requires operators to obtain a Construction Site Runoff Control Permit before commencing land-disturbing activities. You need to have a Construction Site Runoff Control Permit before you can be issued other permits (e.g., site or building permits, demolition permits, or permits to grade, quarry, fill or excavate).

Section 6 contains the Construction Site Runoff Control Permit Application form and checklist for an Erosion and Sediment Control Plan (ESCP). The Ordinance requires that you prepare and include an ESCP for permit approval. For construction sites of 1 acre or more that require compliance with the state Construction General Permit, a Stormwater Pollution Prevention Plan (SWPPP) may be used in lieu of an ESCP.

ENSURE COMPLIANCE AT YOUR WORK SITE

- Maintain a copy of the Construction Site Runoff Control Permit and approved plans and reports (e.g., ESCP) on the work site and available for inspection during all working hours.
- Conduct daily inspections, maintenance, and repair on all BMP measures and maintain reporting information.
- Permit inspections by the General Manager, as deemed necessary.
- Notify the General Manager at least two (2) working days before the following milestones:
 1. Start of construction
 2. BMP measures are completely installed and stabilized
 3. Final grading has been completed, and
 4. Project completion
- In the event of a discharge: Provide immediate notification to the General Manager if any suspected, confirmed, or unconfirmed release of pollutants creates a risk of discharge into San Francisco's sewer system. Responsible parties should take all necessary steps to ensure the detection, containment, and clean-up of such release.

2.2 STATE OF CALIFORNIA CONSTRUCTION GENERAL PERMIT

Owners and operators of construction sites that disturb one acre or more of land, and construction on smaller sites that are part of a larger common plan of development, must comply with the State Construction General Permit (CGP) (2009-0009-DWQ) that regulates stormwater from construction sites.

The CGP does not cover construction activity that discharges to combined sewer systems.

To obtain coverage under the CGP, site owners must electronically file a **Notice of Intent (NOI) with the State**, prepare and implement a SWPPP, and monitor the effectiveness of the SWPPP. The SWPPP, which must also address post-construction runoff control, does not have to be submitted to the Regional Water Quality Control Board but must be onsite and available to inspectors. The SWPPP must be prepared, amended, and certified by a Qualified SWPPP Developer (QSD) who possesses one of the eight certifications and/or registrations specified in the CGP and have attended a State Water Resources Control Board-sponsored or approved QSD training course.

Note that coverage under the San Francisco Construction Site Runoff Control Permit does not constitute compliance with the CGP, nor does compliance with the CGP constitute compliance with San Francisco's Construction Site Runoff Control Ordinance requirements.

A SWPPP must be appropriate for the type and complexity of a project and be developed to address project-specific conditions. The SWPPP must remain onsite during all construction activities.

The SWPPP needs to address the following objectives:

1. Control all pollutants and their sources. These include sources of sediment associated with construction, construction site erosion and all other activities associated with construction activity;
2. Identify and either eliminate, control, or treat all non-stormwater discharges;
3. Ensure that site BMPs are effective and reduce or eliminate pollutants in stormwater discharges and authorized non-stormwater discharges from construction activity to the Best Available Technology/Best Conventional Technology (BAT/BCT) standard;
4. Ensure that calculations and design details, as well as BMP controls, are complete and correct, and
5. Ensure that stabilization BMPs are installed to reduce or eliminate pollutants after construction are completed.

3

COMPLIANCE WITH THE CONSTRUCTION SITE RUNOFF CONTROL ORDINANCE

This section presents three key compliance components to help you meet the application and work site requirements in the Ordinance: application requirements, the permit application process, and technical standards.

IN THIS SECTION:

- 3.1** Application Requirements
- 3.2** Permit Application Process
- 3.3** Technical Standards
 - I** ESCP/SWPPP Preparation
 - II** Contractor/Subcontractor Responsibilities
 - III** Common Practices
 - IV** Rainy Season Standards
 - V** Special Grading Standards
 - VI** Self-Inspection

3.1 APPLICATION REQUIREMENTS

The requirements of the Ordinance apply to property owners or contractors who are planning to commence a public or private construction project that disturbs 5,000 square feet or more within the City and County of San Francisco.

Before the project starts, applicants need to complete a Permit Application Form (see Section 6) and prepare an ESCP (see Section 5). SFPUC will review the submissions and, if approved, issue a Construction Site Runoff Control Permit.



Polluted wastewater from construction sites can enter the storm drain system if erosion and sediment controls are not used properly.

3.2 PERMIT APPLICATION PROCESS

The permit application process for SFPUC's Construction Site Runoff Control Permit is shown in Figure 2. The process begins with a pre-

application meeting with SFPUC to discuss the nature of the project and potential permit requirements.

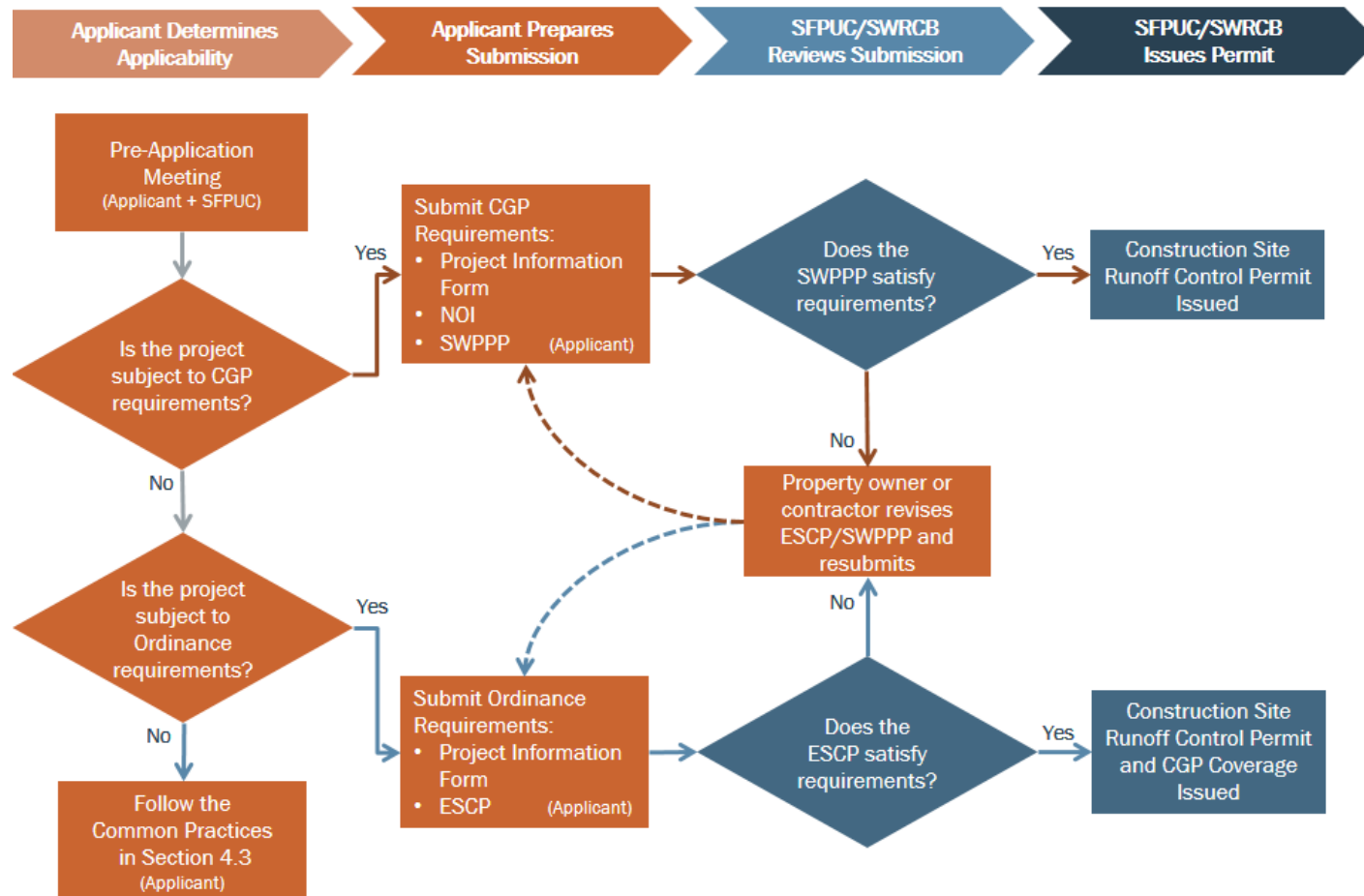


Figure 2. Permit Process

3.2 PERMIT APPLICATION PROCESS

Property owners and contractors complete the Project Application Form and prepare either an ESCP or SWPPP, which is reviewed by SFPUC. If the application and plan are not adequate to meet the requirements of the Ordinance, the property owner or contractor can revise the plan and resubmit the application. If the application is approved, a Construction Site Runoff Control Permit is issued, which allows property owners or contractors to obtain other permits and commence construction.

STEP 1: COMPLETE THE PERMIT APPLICATION FORM

Section 6 contains the Permit Application Form (Figure 3), which requires the following information:

- Details about the project site, owners, and contractors.
- Whether the site discharges to the Separate or Combined Sewer System.
- Total site area and disturbed area.
- Project start and end dates.
- Site conditions relevant to construction wastewater (e.g., groundwater, stormwater, dewatering byproducts).
- A checklist to ensure that ESCP requirements are met.

STEP 2: PREPARE AND SUBMIT A SWPPP OR ESCP

1. If your site disturbs less than 1 acre of land but more than 5,000 square feet, regardless of whether your site discharges to the Separate or Combined Sewer, you need to submit an ESCP with your Permit Application Form. The minimum requirements for the ESCP are outlined in Section 5 and summarized in Section II of the Permit Application Form.
2. If your site discharges to the Separate Sewer System and will disturb 1 acre of land or more, you must submit a project-specific

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Wastewater Enterprise/Collection System Division
Construction Site Runoff Control Program
PROJECT APPLICATION

Depending on construction project conditions, a construction site may be subject to various requirements such as the Statewide General Construction Permit or the Construction Site Runoff Control Ordinance (Part I). A Construction Site Runoff Control Permit is required for all public and private construction projects disturbing 5,000 square feet or more of the ground surface. Completion of this form and an enclosed Erosion and Sediment Control Plan (ESCP) is required for permit application. Projects disturbing an acre or more of land within a separate sewer system may submit a Stormwater Pollution Prevention Plan (SWPPP) in lieu of an ESCP.

PROJECT INFORMATION

Project Name:		Assessor Parcel Number (APN):	
Project Address:			
Property Owner	Name:	Phone:	
	Address:	Email:	
Applicant (if different from owner)	Name:	Phone:	
	Address:	Email:	
Primary Contractor	Name:	Phone:	
	Address:	Email:	
Subcontractor	Name:	Phone:	
	Address:	Email:	

PART I. PROJECT DESCRIPTION

Collection system type: ☐ Separate Sewer System ☐ Combined Sewer System

Total project site area: _____ Total area of disturbed ground surface: _____

Anticipated project start date: _____ Anticipated project end date: _____

Indicate with a check mark any of the following site conditions applicable to the project.

<input type="checkbox"/> Shallow depth to groundwater table (<4')	<input type="checkbox"/> Slopes > 30%	<input type="checkbox"/> Maher Ordinance areas
<input type="checkbox"/> Existing special formations (receiving water, wetland, cliffs, rock outcroppings, etc.)	<input type="checkbox"/> Slopes < 30% but > 15%	<input type="checkbox"/> Site contamination (potential legacy pollutants in soil or groundwater)
<input type="checkbox"/> Slopes < 15%		

Will the project disturb one acre of ground surface or more and discharge to the Separate Sewer System? ☐ Yes ☐ No

If yes, your project is subject to both the Statewide Construction General Permit and Construction Site Runoff Control Ordinance requirements. You must prepare a SWPPP and continue to Part III.

Will the project meet any of these criteria during construction?

<input type="checkbox"/> Will the project disturb > 5,000 square feet of ground surface?	<input type="checkbox"/> Will the project include grading, building demolition, cleaning, filling, stockpiling, excavating or earth moving?
<input type="checkbox"/> Will construction materials be used that could negatively affect water quality if discharged from the site, such as paints, solvents, concrete, sawdust, or mortars?	<input type="checkbox"/> Will stormwater or urban runoff have the potential to contact any portion of the construction area, including washing and staging areas?

If you checked any of the above, your project is subject to the Construction Site Runoff Control Ordinance requirements. You must prepare an ESCP and continue to Part II. If you did not check any of the above, you do not need a Construction Site Runoff Control Permit, however you should use common construction wastewater management practices to prevent pollution from your site.

PART III. CERTIFICATION

Representative's signature: _____ Date: _____

PART IV. APPROVAL (OFFICE USE ONLY)

Approved? ☐ Yes ☐ No Permit # _____

Approver's signature: _____ Date: _____

Figure 3. Permit Application Form

3.2 PERMIT APPLICATION PROCESS

SWPPP along with your Permit Application Form. The requirements for SWPPPs are set forth in the CGP (see http://www.waterboards.ca.gov/water_issues/programs/stormwater/constpermits.shtml for more information). SWPPPs must be developed by a QSD.

Depending on the slope of the site, specific qualified persons may be authorized to prepare an ESCP, as follows:

- For projects with slopes of 15% or greater, a QSD may prepare an ESCP.
- For projects with slopes less than 15%, the property owner, a property owner designee, or a QSD may prepare an ESCP.

STEP 3: ESCP IMPLEMENTATION AND INSPECTIONS

Once a construction permit has been issued, construction BMP inspections take place. Per the Ordinance and CGP requirements, the construction milestones at which inspections are expected to take place is illustrated in Figure 4.

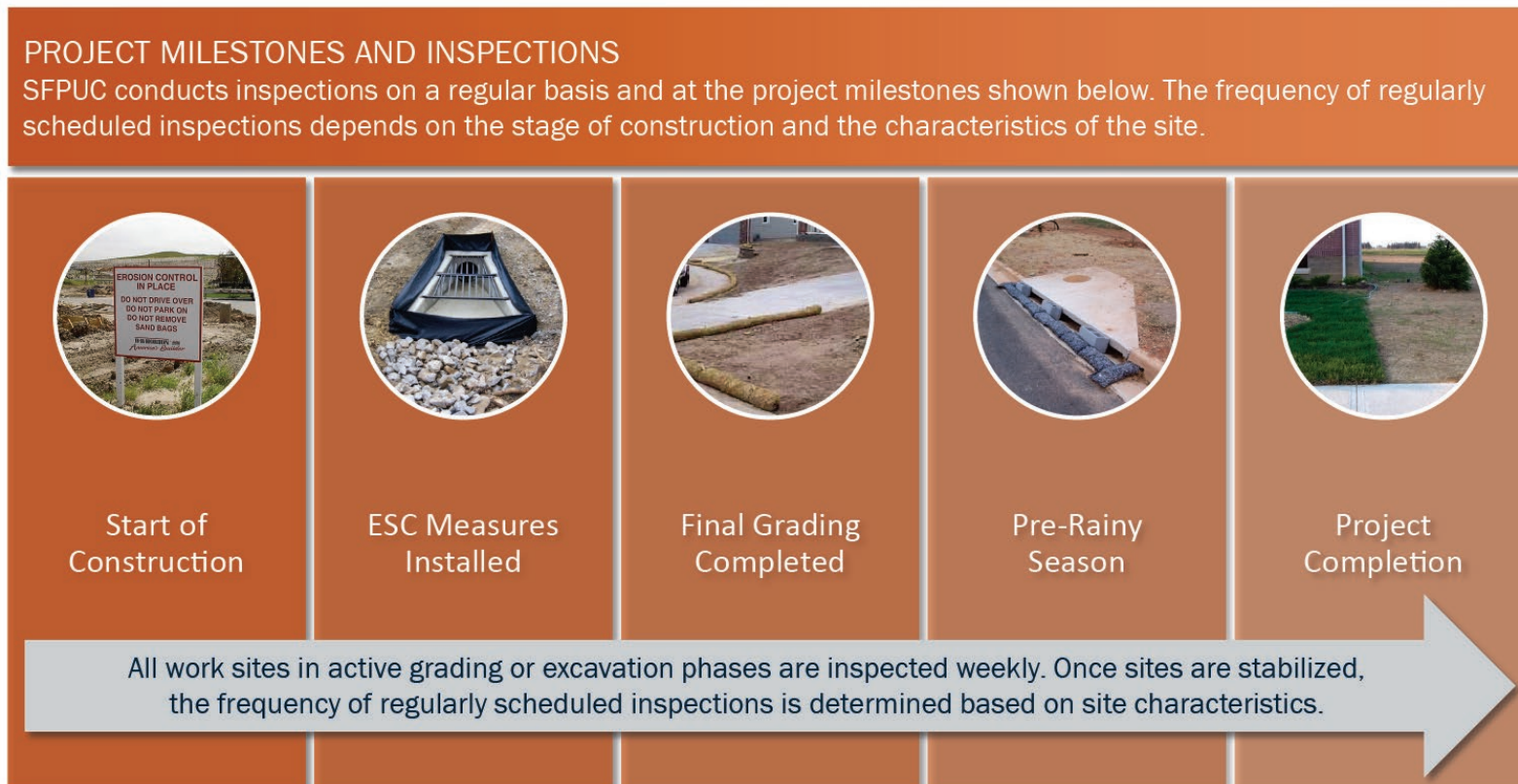


Figure 4. Project Milestones and Inspections

3.3 TECHNICAL STANDARDS

Technical standards include specific requirements and practices property owners and contractors should be aware of to comply with the Ordinance. This section also includes common practices that are designed to assist site operators in reducing erosion and controlling sediment and pollutant discharges. Operators of all construction sites are encouraged to adopt these common practices to prevent pollution from their sites.

I. ESCP PREPARATION

As described in Section 4.2 (Permit Application Process), specific qualified persons are required to prepare ESCPs, as follows:

- ESCPs for projects on slopes of 15% or greater are to be prepared by a Qualified SWPPP Developer (QSD).
- ESCPs for projects on slopes less than 15% are to be prepared by a QSD or person(s) designated by the property owner.

A Qualified SWPPP Developer (QSD) must prepare all ESCPs for sites with 15% or greater slopes. A QSD or another designee can prepare ESCPs for projects on slopes less than 15%.

II. CONTRACTOR/SUBCONTRACTOR RESPONSIBILITIES

Property owners and contractors ultimately are required to prevent construction debris from entering the sewer system or waterbodies. To achieve this goal, property owners and contractors have the following responsibilities:

1. Prevent any construction-related materials, wastes, spills, or residues from entering a stormwater conveyance system.

2. Ensure that all subcontractors and suppliers are aware of all stormwater quality measures and implement such measures.
3. Ensure safety of vehicles operating in the roadway adjacent to erosion control measures.
4. Comply with the provisions of the State General Construction Permit if the disturbed area is greater than one acre.
5. Implement the conditions of the ESCP/SWPPP, contract documents and local ordinances with respect to erosion and sediment control and other waste management regulations.
6. Oversee any site grading and construction operations and evaluate the effectiveness of the BMPs. Modify BMPs as necessary to prevent stormwater pollution. Document modifications to the ESCP/SWPPP should be documented.
7. Educate all employees on the proper use of BMPs. Employees need to be informed that illicit discharges are prohibited by local, state, and federal laws and instructed on the proper installation and implementation of all BMPs applicable to their duties.

III. COMMON PRACTICES

The Ordinance requires that sites be maintained to minimize runoff, erosion, and sedimentation. The following are common construction practices that should be implemented to prevent construction-related runoff, materials, wastes, spills, or residues from entering the storm drain system or waterbodies.

PLANNING AND SCHEDULING

- Prior to beginning land-disturbing activities, including clearing and grading, all clearing limits, sensitive areas and their buffers, and

3.3 TECHNICAL STANDARDS

trees that are to be preserved within the construction area should be clearly marked, both in the field and on the plans, to prevent damage and offsite impacts. Plastic, metal, or stake wire fence may be used to mark the clearing limits.

- A washout area should be designated and maintained for equipment and truck washing, and for materials such as concrete, stucco, paint, caulking, sealants, and drywall plaster. Washout water is not allowed to flow into streets, storm drains, or offsite.
- If applicable, underground storm drain facilities should be installed complete as shown on the improvement plans.

EROSION CONTROL

- Erosion control measures should be maintained daily. These measures should control and contain erosion-caused silt deposits and provide for the safe discharge of silt-free stormwater into existing and proposed storm drain facilities. Design of these measures must be approved and updated each year by the property owner or contractor.
- Borrow areas and temporary stockpiles should be protected with appropriate erosion control measures to the satisfaction of the inspector.
- Dust control should be practiced on all construction sites with exposed soils as needed, particularly in windy or wind-prone areas. Dust control is considered a temporary measure and an intermediate treatment between site disturbance and construction, paving, or revegetation. Refer to the *Erosion and Sediment Control Field Manual*, 4th Edition, prepared by the California Regional Water Quality Control Board, San Francisco Bay Region, for more information about dust control.



A designated concrete washout area will contain washout water and prevent it from leaving the site or entering the storm drain system.

SEDIMENT CONTROL

- Sufficient sediment control materials, such as silt fences, fiber rolls, and sand bags, should be stored onsite in case of immediate need. These measures should be used to inhibit silt from leaving the site and entering the storm drain system. Sandbags must be full; approved sandbag fill materials are sand, decomposed granite or gravel, or other materials approved by the inspector.
- If an existing driveway is removed during construction, the contractor should place drain rock as a gravel roadway (8" minimum thickness for the full width and length of the site egress area as defined in these plans) at the site exit, the location of which needs to be approved by

3.3 TECHNICAL STANDARDS

the inspector in the field. Construction egress should be equipped with a truck-washing station. All truck tires and undersides of vehicles should be washed as appropriate when leaving the site to prevent tracking of mud or sediment. Any mud or sediment that is tracked onto public streets should be removed the same day.

- All soil and debris should be removed on a daily basis from any street areas impacted by construction, or more frequently as directed by the inspector.
- All paved areas exposed to soil excavation and placement should be thoroughly swept.

MAINTENANCE

- BMPs must be upgraded if necessary to provide effective protection from erosion and sediment-laden runoff. If a BMP fails, the BMP must be repaired and improved, or replaced with an acceptable alternate, as soon as it is safe to do so. All modifications to the BMPs should be documented in the ESCP or SWPPP.

GOOD HOUSEKEEPING/SPILL CONTROL

- All chemicals, liquid products, petroleum products, and non-inert wastes present on the site should be covered, contained, and protected from vandalism.
- Waste materials, demolition debris, hazardous materials, and hazardous waste should be stored, handled, and disposed of in a manner that does not cause contamination of stormwater. Such materials include, but are not limited to, petroleum products, asphalt products, pesticides, paints, stains, solvents, and concrete.
- Remnant trash and debris should be removed or properly stored daily.



Silt fence can be used to contain sediment from disturbed areas.

- Materials for spill control and containment should be stored onsite and employees and subcontractors should be made aware of their location. Contaminated surfaces should be cleaned immediately following any discharge or spill incident using practices to prevent the discharge of pollutants offsite.

3.3 TECHNICAL STANDARDS

IV. RAINY SEASON STANDARDS

The rainy season occurs between October 1st and April 15th. BMPs specifically designed to control runoff from rainfall events include fiber rolls, silt fences, gravel/sand berms, and sediment traps. These BMPs and other specific maintenance activities are presented in the *San Francisco Construction BMP Handbook* (SFPUC 2013). In addition to these BMPs, the following construction site runoff control practices should be implemented during the rainy season:

1. All paved areas should be kept clear of earth material and debris. The site should be maintained so as to minimize sediment runoff to any storm drain system.
2. Sandbags or gravel bags should be stockpiled onsite and placed at intervals shown on ESCPs when the rain forecast is 40% or greater, or when directed by the inspector.
3. During periods when storms are forecast:
 - Excavated soils should not be placed in streets or on paved areas.
 - Any excavated soils should be removed from the site by the end of the day. If stockpiles are necessary, they should be covered with a secure tarpaulin or surrounded with fiber rolls, a gravel sediment barrier, silt fence, or other runoff controls.
 - Inlet controls should be used as needed (e.g., sediment traps, gravel berms, or sandbags) for storm drains adjacent to the project site or stockpiled soil.
4. The function and performance of BMPs should be maintained during rainfall events. Failing BMPs, such as overflowing basins, breaches in dikes, etc., should be addressed as soon as possible, and any additional measures should be implemented as necessary.
5. Inspections should be conducted prior to and after rain events and daily during extended rain events for the following BMPs:
 - Hydraulic mulch
 - Straw mulch
 - Soil binders
 - Slope drains
 - Fiber rolls
 - Silt fences
 - Sediment traps
 - Stockpile
 - Covers

BMPs should be repaired or replaced as needed.



Stockpile covers should be inspected before and after rain events.

3.3 TECHNICAL STANDARDS

6. After rainstorms, the property owner or contractor should check for and remove sediment trapped by sandbags, fiber rolls, silt/sediment fences, and other BMPs. These BMPs should be replaced if deterioration is evident.

V. SPECIAL GRADING STANDARDS

Some construction activities are restricted depending on site grades. The following standards identify allowable activities for specific site grades and specific times of the year.

1. For projects on slopes less than 5%, vegetation clearing, land grading, or any other soil-disturbing activities are permissible throughout the year.
2. For projects on slopes 5% and greater, vegetation clearing, land grading, or any other soil disturbing activities should only take place between April 1st and October 15th of any given year. Extensions of the October 15th deadline may be authorized by the SFPUC upon written request if all of the following conditions are met:
 1. The project is substantially complete;
 2. The work remaining can be finished in a short period of time;
 3. Completion of the work involved will lessen the amount of erosion and/or sedimentation expected in the future;
 4. The BMPs specified on the ESCP/SWPPP have been installed prior to October 1st;
 5. The BMPs have been inspected and found to be adequate; and
 6. Weather permits.

A written request for an extension and the associated fee must be submitted to SFPUC seven days prior to October 1st. The request must describe how the above conditions will be satisfied.

BMPs should be fully implemented by October 15th of each year and maintained through April 1st. When the ESCP/SWPPP requires the installation of sediment retention devices, these devices must be completed and functional no later than October 1st of that year.

During the grading phases of construction, the following practices should be implemented to minimize erosion and control sediment-laden runoff:

- Check and repair all BMPs as necessary
- Sweep and vacuum streets and pavement
- Apply mulch and hydroseed to stabilize areas
- Practice good stockpile and solid waste management



Hydroseeding protects slopes from erosion.

3.3 TECHNICAL STANDARDS

Additional detail on these practices is provided in the San Francisco *Construction BMP Handbook* (SFPUC 2013).

VI. SELF-INSPECTION

Self-inspections are necessary to prevent discharges of construction wastewater. Inspections should be performed by a person specifically trained in stormwater construction site management and runoff control BMPs. The self-inspections should achieve the following objectives:

- Ensure that property owners and contractors take full responsibility for managing stormwater pollution caused by their activities.
- Ensure that property owners and contractors implement their ESCP or SWPPP.
- Document that stormwater BMPs are properly installed and implemented and are functioning effectively.
- Identify maintenance and repair needs.

Self-inspections should meet the following standards:

1. A self-inspection checklist (Figure 6)—noting date, time, conditions, BMP maintenance and/or modifications—should be kept on-site and made available to the inspector.
2. Self-inspections should occur daily when earth moving or grading is being conducted from October 1st through April 15th. Note: This self-inspection standard only applies to projects allowed to grade during the rainy season.
3. Self-inspections should occur at least weekly (every 7 days) as construction and grading are being conducted throughout the year.

Refer to Section 6 for a self-inspection checklist to use during inspections.

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Wastewater Enterprise/Collection System Division
Construction Site Runoff Control Program
CONSTRUCTION SITE SELF-INSPECTION FORM

GENERAL INFORMATION

Project Name: _____

Inspector Name: _____

Date: _____ Start Time: _____ End Time: _____

Date of Last Self-Inspection: _____

Rainy Season? (Oct. 1 - Apr. 15) ☐ Yes ☐ No

Weather Condition: ☐ Dry ☐ Light Rain
☐ Windy ☐ Heavy Rain

Rainfall Status: ☐ Rain Prior to Inspection ☐ Rain During Inspection ☐ Rain Expected
Time Since Last Rainfall (days/hrs): _____
Anticipated Duration of Rainfall (days/hrs): _____

Construction Phase: ☐ Initial ☐ Clearing, Grubbing ☐ Rough Grading
☐ Building Construction ☐ Finish Grading ☐ Final Stabilization

SELF-INSPECTION CHECKLIST

INSPECTION QUESTIONS	N/A	YES	NO	NOTES
Have all sensitive areas and vegetation onsite been marked and protected from damage prior to the start of land-disturbing activities?				
Are there modifications to planned ESC measures identified in this inspection?				
If yes, has the ESC Plan or SWPPP been modified to reflect this modification?				
Are any ESC BMPs failing or in need of repair?				
Are all truck tires and undersides of vehicles being washed as appropriate when leaving the site to prevent tracking of mud or sediment?				
Are all entrance/exits free of sediment or debris?				
Are all stormwater discharge points into receiving storm drains and catch basins free of silt and sediment?				
Are borrow areas and temporary stockpiles protected with appropriate ESC measures?				
Dust control measures in place during construction activity?				
Are erosion control materials (sandbags, sediment fences, etc.) stored and available on site?				
Are all waste materials, demolition debris, hazardous materials, and hazardous waste properly stored, handled and disposed of?				
Is the washout area properly used and maintained?				
Is there evidence of vehicles and equipment not using the washout area?				

☐ No Identify actions to be performed and action plan to address:

CERTIFICATION

Representative's signature: _____ Date: _____

Figure 5. Self-Inspection Checklist

STANDARDS AND GUIDELINES





PREPARING THE EROSION AND SEDIMENT CONTROL PLAN

IN THIS SECTION:

- 4.1 Erosion and Sediment Control Plan Purpose
- 4.2 Erosion and Sediment Control Plan Principles
- 4.3 Elements of an Erosion and Sediment Control Plan

4.1 EROSION AND SEDIMENT CONTROL PLAN PURPOSE

In addition to fulfilling Ordinance requirements, an ESCP serves as a plan for property owners and contractors to prevent eroded sediment, pollutants, and other construction debris from leaving the site. An ESCP outlines the site conditions and proposed construction activities and identifies the BMPs that will be implemented.

The goal of the plan is to use BMPs to prevent construction site runoff from affecting local waterbodies and infrastructure. This goal is attained by

- Devising an effective construction schedule and site plan
- Protecting soil surfaces
- Controlling surface runoff
- Capturing sediment on-site
- Regularly inspecting and maintaining BMPs

To ensure the effectiveness of BMPs, a maintenance plan and routine inspections are an integral part of the ESCP. These erosion and sediment control principles are discussed below and in the San Francisco *Construction BMP Handbook* (SFPUC 2013).



Poorly implemented and unmaintained erosion and sediment controls can lead to pollutant discharges.

4.2 EROSION AND SEDIMENT CONTROL PLAN PRINCIPLES

An effective ESCP is designed to protect the soil surface from erosion, control the amount and velocity of runoff, capture all sediment onsite during each phase of construction, and prevent other non-stormwater discharges.

To ensure water quality and infrastructure protection from construction site runoff, Table 2 presents six principles that should be considered in the development of an ESCP.

Table 2. Six Principles for Effective ESCPs

Plan Development to Fit Environmental Conditions	<p>Work with existing site conditions as much as possible to reduce the extent of land-disturbances. Consider the current topography, soil conditions, imperviousness, and other physical characteristics of the site to determine the appropriate BMPs and strategy to implement. For instance:</p> <ul style="list-style-type: none"> • Identify the natural drainage of the site and use natural drainage contours to convey construction site runoff. • Localize BMPs to sub-drainages of the site so treatment occurs at the sub-level rather than at the end-level. • Focus BMPs on areas of high imperviousness where stormwater volume and velocity are greatest.
Construction Scheduling	<p>BMP installation should coincide with construction activities as the most cost-effective control strategy. For instance, sediment control practices such as silt fences and sediment basins should be installed prior to grading activities.</p>
Good Housekeeping and Spill Control	<p>Ensure that chemicals and waste materials do not come into contact with rain, snow, or runoff by:</p> <ul style="list-style-type: none"> • Properly containing chemicals and hazardous materials. • Removing or storing trash and debris on a regular basis. • Maintaining spill control and containment supplies onsite and training employees on their use.
Erosion Control	<p>Protect the soil surface and control surface runoff:</p> <ul style="list-style-type: none"> • Land disturbance should be kept to a minimum and soil surfaces stabilized immediately. Once the surface has been disturbed, the soil is subject to accelerated erosion and should be protected with appropriate cover, such as mulch or vegetation. • Surface runoff can be controlled by interrupting long slopes with temporary diversions and diverting sediment-laden water to impoundments. As much as possible, surface runoff should be diverted around disturbed areas. • For effective surface runoff control, all outlets and channels should be stabilized to prevent erosion.
Sediment Control	<p>Erosion controls reduce the amount of sediment generated, but they do not eliminate the need for sediment control devices such as barriers and traps. Sediment control measures aim to allow sedimentation to occur onsite rather than offsite. Sediment control BMPs include:</p> <ul style="list-style-type: none"> • Sediment basins and traps • Silt fence and fiber rolls • Inlet protection
Maintenance and Inspection Program	<p>Construction wastewater can only be effectively controlled with thorough, periodic checks of the BMPs and timely repairs. Visual monitoring and maintenance of BMPs is essential to the success of an ESCP, and poor maintenance can result in a violation of the Ordinance.</p>

4.3 ELEMENTS OF AN EROSION AND SEDIMENT CONTROL PLAN

An ESCP should contain narrative text, figures of the site, and site plans or drawings that identify the site conditions, outline the proposed construction activity, and describe the BMPs to be employed. The ESCP should detail the types of BMPs used, their location, and approximate time of implementation or installment relative to the construction schedule. Additionally, the plan should contain a section outlining the maintenance procedures for which the property owner or contractor or their designees will be responsible. Below are elements of the ESCP.

I. SITE CONDITIONS

The ESCP should contain a brief narrative section that presents the current conditions of the site. In this section, site restrictions, limitations, or natural drainages can be discussed and highlighted as areas of focus for BMP implementation. The following maps should be included:

- ✓ Vicinity map showing the location of the site in relationship the surrounding area's water courses, water bodies, and other significant geographic features. Include parcel boundaries.
- ✓ Map of critical areas (steep slopes, highly erodible soils, etc.)

II. PROJECT DESCRIPTION AND CONSTRUCTION ACTIVITIES

The ESCP should contain a brief section that describes the proposed project and associated construction activities, including

- ✓ Brief narrative of proposed project
- ✓ Nature and purpose of construction activities
- ✓ Construction schedule (identify major phases, if any)
- ✓ Highlight any serious considerations related to site planning and management (materials to be stored, waste to be handled)

- ✓ Map of areas to be disturbed
- ✓ List of applicable permits directly associated with grading, including CGP, State 401 Water Quality Certification, Army Corps 404 permit, and Fish and Game 1600 Agreement

III. BMPs AND IMPLEMENTATION SCHEDULE

The ESCP should identify the BMPs to be employed to effectively control construction site runoff throughout all phases of construction. The principles discussed in the San Francisco *Construction BMP Handbook* (SFPUC 2013) and other Stormwater BMP reference materials such as the California Stormwater Quality Association (CASQA) *Construction BMP Manual* (2003) should be used to guide selection of appropriate BMPs. Other technical references for BMPs and construction wastewater control are available on the SFPUC website (<http://sfwater.org/index.aspx?page=235>).

- ✓ Proposed BMPs to be employed and rationale for their use, including soil loss calculations if necessary
- ✓ Phasing of or implementation schedule of BMPs

IV. SITE PLAN

The site plan should be neat and legible. Several sheets may be used to illustrate the phasing of BMP implementation as construction progresses over time. When two or more sheets are used to illustrate the plan view, an index sheet is required. Site plan(s) may be an appendix of the ESCP. The site plan(s) should include all of the following:

- ✓ Legend, north arrow, and scale of the drawing
- ✓ An outline of the entire property
- ✓ A "limit of disturbance" line to show the limit of soil disturbance and areas where existing vegetation is preserved

4.3 ELEMENTS OF AN EROSION AND SEDIMENT CONTROL PLAN

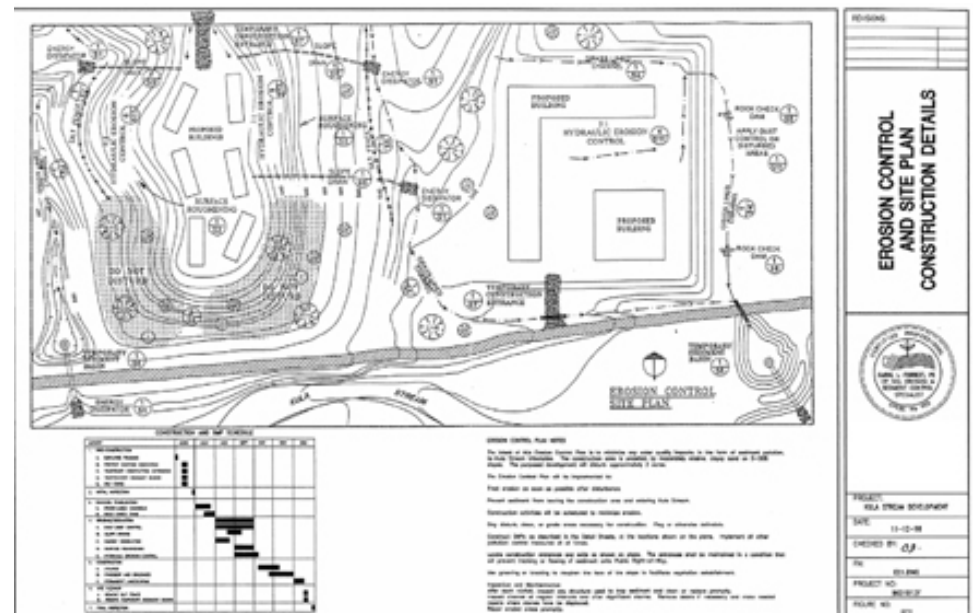
- ✓ All streams and drainage ways delineated
- ✓ All storm drain inlets and outlets
- ✓ State and federal wetlands, if any
- ✓ Drainage areas and direction of flow
- ✓ Anticipated discharge locations for construction wastewater (i.e., groundwater, stormwater, and construction wastewater such as dewatering byproducts)
- ✓ Locations and types of erosion and sediment controls, as well as dewatering and soil stabilization controls, where applicable
- ✓ Location of material storage areas (e.g., trash, soil, fuel, construction materials)
- ✓ Location of vehicle/equipment wash and maintenance areas
- ✓ Location of entrance/exits to the project area
- ✓ Locations where materials are directly exposed to stormwater
- ✓ Locations of contaminated soils or groundwater
- ✓ Location of building and activity areas (e.g., fueling islands, garages, waste container area, wash racks, hazardous material storage areas)
- ✓ Standard notes (see notes in Appendix 6.1 of the SFPUC (2013) *Construction BMP Handbook*)

V. MAINTENANCE AND INSPECTION

The ESCP should indicate the person(s) responsible for maintenance and the procedures and schedule that the maintenance activity will require. The maintenance schedule should be determined on the basis of site conditions, design safeguards, construction sequence, and anticipated weather

conditions. The property owner or contractor should frequently inspect the property and/or construction site boundary for sedimentation. The ESCP should be flexible enough to allow for modification to correct problems that arise from unanticipated events or construction changes. Significant changes should be resubmitted for approval before such construction activity changes occur. The ESCP should include the following:

- ✓ A summary of maintenance and inspection requirements for erosion and sediment control measures
- ✓ A maintenance schedule or routine to be implemented
- ✓ Forms or records that would be used to record maintenance and self-inspections



Site plans should be updated regularly to capture current activities and site conditions.

4.3 ELEMENTS OF AN EROSION AND SEDIMENT CONTROL PLAN

VI. FINAL STATEMENTS

The ESCP should include the following notes:

- ✓ Include a note that specifies that the Collection System Division must be notified 48 hours prior to commencement of construction.
- ✓ Include the following statement: “Review and/or approval of the ESCP should not relieve the contractor from his or her responsibilities for compliance with the requirements of the Construction Site Runoff Control Ordinance, nor should an approved ESCP relieve the contractor from errors or omissions in the approved plan.”
- ✓ Include a signed Owner’s Certification that states: “I, the undersigned, certify that all land clearing, construction and development should be done pursuant to the approved plan.” This must be signed in ink on each plan submitted or on an original reproducible.
- ✓ Include the following note: “If the approved plan needs to be modified additional sediment and stormwater control measures may be required as deemed necessary by the SFPUC.”



Inlets can be protected from construction wastewater using a variety of methods



REFERENCES

REFERENCES

California Stormwater Quality Association (CASQA). 2003. *Stormwater Best Management Practice Handbook—Construction*. Online portal is available at: cabmphanbooks.com.

San Francisco Public Utilities Commission (SFPUC). 2013. *Construction Best Management Practices Handbook*. August 2013.

San Francisco Public Utilities Commission (SFPUC). 2013. *San Francisco Stormwater Guidance Document for the Phase II Small Municipal Separate Storm Sewer System (MS4) General Permit*. July 2013. Prepared by SFPUC, Wastewater Enterprise (WWS), Planning and Regulatory Compliance Division (PRCD), and Collection System Division (CSD).

San Francisco Bay Regional Water Quality Control Board (SFBRWQCB). 2002. *Erosion and Sediment Control Field Manual*. Fourth Edition. August 2002.

State Water Resources Control Board. 2009. *National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities*. ORDER No. 2009-0009-DWQ, NPDES No. CAS000002. Adopted September 2, 2009, amended by 2010-0014-DWQ and 2012-0006-DWQ.

State Water Resources Control Board. 2013. *Water Quality Order No. 2013-0001-DWQ, National Pollutant Discharge Elimination System (NPDES) General Permit No. CAS000004 Waste Discharge Requirements (WDRs) for Storm Water Discharges from Small Municipal Separate Storm Sewer Systems (MS4s) (General Permit)*. February 5, 2013.

FORMS



IN THIS SECTION:

Construction Site Runoff Control Program Forms

Project Application

Construction Site Self-Inspection Form



San Francisco
Water Power Sewer
Services of the San Francisco Public Utilities Commission

SAN FRANCISCO PUBLIC UTILITIES COMMISSION
Wastewater Enterprise/Collection System Division
Construction Site Runoff Control Program
PROJECT APPLICATION

Depending on construction project conditions, a construction site may be subject to various requirements such as the Statewide General Construction Permit or the Construction Site Runoff Control Ordinance (Part I). A Construction Site Runoff Control Permit is required for all public and private construction projects disturbing 5,000 square feet or more of the ground surface. Completion of this form and an enclosed Erosion and Sediment Control Plan (ESCP) is required for permit application. Projects disturbing an acre or more of land within a separate sewer system may submit a Stormwater Pollution Prevention Plan (SWPPP) in lieu of an ESCP.

PROJECT INFORMATION

Project Name:		Assessor Parcel Number (APN):	
Project Address:			
Property Owner	Name: Address:	Phone: Email:	
Applicant (if different from owner)	Name: Address:	Phone: Email:	
Primary Contractor	Name: Address:	Phone: Email:	
Subcontractor	Name: Address:	Phone: Email:	

PART I. PROJECT DESCRIPTION

Collection system type:	<input type="checkbox"/> Separate Sewer System	<input type="checkbox"/> Combined Sewer System
Total project site area:	Total area of disturbed ground surface:	
Anticipated project start date:	Anticipated project end date:	
Indicate with a check mark any of the following site conditions applicable to the project.		
<input type="checkbox"/> Shallow depth to groundwater table (<4')	<input type="checkbox"/> Slopes > 30%	<input type="checkbox"/> Maher Ordinance areas
<input type="checkbox"/> Existing special formations (receiving water, wetland, cliffs, rock outcroppings, etc.)	<input type="checkbox"/> Slopes < 30% but > 15%	<input type="checkbox"/> Site contamination (potential legacy pollutants in soil or groundwater)
Will the project disturb one acre of ground surface or more <u>and</u> discharge to the Separate Sewer System? <input type="checkbox"/> Yes <input type="checkbox"/> No		
If yes, your project is subject to both the Statewide Construction General Permit and Construction Site Runoff Control Ordinance requirements. You must prepare a SWPPP and continue to Part III.		
Will the project meet any of these criteria during construction?		
<input type="checkbox"/> Will the project disturb > 5,000 square feet of ground surface?	<input type="checkbox"/> Will the project include grading, building demolition, clearing, filling, stockpiling, excavating or earth moving?	
<input type="checkbox"/> Will construction materials be used that could negatively affect water quality if discharged from the site, such as paints, solvents, concrete, sawdust, or mortars?	<input type="checkbox"/> Will stormwater or urban runoff have the potential to contact any portion of the construction area, including washing and staging areas?	
If you checked any of the above, your project is subject to the Construction Site Runoff Control Ordinance requirements. You must prepare an ESCP and continue to Part II. If you did not check any of the above, you do not need a Construction Site Runoff Control Permit, however you should use common construction wastewater management practices to prevent pollution from your site.		

PART II. ESCP CHECKLIST

Please check each applicable box before submitting the ESCP to confirm that all required elements are included.

I. Site Conditions

- ☐ Vicinity map showing the location of the site in relationship the surrounding area's water courses, water bodies, and other significant geographic features. Include parcel boundaries.
- ☐ Map of critical areas (steep slopes, highly erodible soils, etc.)

II. Project Description and Construction Activities

- ☐ Brief narrative of proposed project
- ☐ Nature and purpose of construction activities
- ☐ Construction schedule (identify major phases, if any)
- ☐ Highlight any serious considerations related to site planning and management (materials to be stored, waste to be handled)
- ☐ Map of areas to be disturbed
- ☐ List of applicable permits directly associated with grading, including CGP, State 401 Water Quality Certification, Army Corps 404 permit, and Fish and Game 1600 Agreement

III. Erosion and Sediment Control BMPs and Implementation Schedule

- ☐ Proposed BMPs to be employed and rationale for their use, including soil loss calculations if necessary
- ☐ Phasing of or implementation schedule of BMPs

IV. Site Plan

The site plan should be neat and legible. Several sheets may be used to illustrate the phasing of BMP implementation as construction progresses over time. When two or more sheets are used to illustrate the plan view, an index sheet is required. The site plan should include all of the following:

- ☐ Legend, north arrow, and scale of the drawing
- ☐ An outline of the entire property
- ☐ A "limit of disturbance" line to show the limit of soil disturbance and areas where existing vegetation is preserved
- ☐ All streams and drainage ways delineated
- ☐ All storm drain inlets and outlets
- ☐ State and federal wetlands, if any
- ☐ Drainage areas and direction of flow
- ☐ Anticipated discharge locations for construction wastewater (i.e., groundwater, stormwater, and construction wastewater such as dewatering byproducts)
- ☐ Locations and types of erosion and sediment controls, as well as dewatering and soil stabilization controls, where applicable
- ☐ Location of material storage areas (e.g., trash, soil, fuel, construction materials)
- ☐ Location of vehicle/equipment wash and maintenance areas
- ☐ Location of entrance/exits to the project area
- ☐ Locations where materials are directly exposed to stormwater
- ☐ Locations of contaminated soils or groundwater
- ☐ Location of building and activity areas (e.g., fueling islands, garages, waste container area, wash racks, hazardous material storage areas)
- ☐ Standard notes (see notes in Appendix 6.1 of the SFPUC (2013) *Construction BMP Handbook*)

V. Maintenance and Inspection

- ☐ Summarize maintenance and inspection requirements for erosion and sediment control measures
- ☐ Provide forms or records that would be used to record maintenance and self-inspections
- ☐ Identify a maintenance schedule or routine to be implemented

VI. Final Statements

- ☐ Include a note that specifies that the Bureau of Environmental Regulation and Management must be notified 48 hours prior to commencement of construction.
- ☐ Include the following statement: "Review and/or approval of the ESCP should not relieve the contractor from his or her responsibilities for compliance with the requirements of the Construction Site Runoff Control Ordinance, nor should an approved ESCP relieve the contractor from errors or omissions in the approved plan."
- ☐ Include a signed Owner's Certification that states: "I, the undersigned, certify that all land clearing, construction and development should be done pursuant to the approved plan." This must be signed in ink on each plan submitted or on an original reproducible.
- ☐ Include the following note: "If the approved plan needs to be modified additional sediment and stormwater control measures may be required as deemed necessary by the SFPUC."

PART III. CERTIFICATION

Representative's signature:

Date:

PART IV. APPROVAL (OFFICE USE ONLY)

Approved? ☐ Yes ☐ No Permit #:

Approver's signature:

Date:



San Francisco
Water Power Sewer
Services of the San Francisco Public Utilities Commission

SAN FRANCISCO PUBLIC UTILITIES COMMISSION
Wastewater Enterprise/Collection System Division
Construction Site Runoff Control Program
CONSTRUCTION SITE SELF-INSPECTION FORM

GENERAL INFORMATION				
Project Name:				
Inspector Name:				
Date:		Start Time:		End Time:
Date of Last Self-Inspection:				
Rainy Season? (Oct. 1–Apr. 15)		<input type="checkbox"/> Yes	<input type="checkbox"/> No	
Weather Condition:		<input type="checkbox"/> Dry	<input type="checkbox"/> Light Rain	
		<input type="checkbox"/> Windy	<input type="checkbox"/> Heavy Rain	
Rainfall Status:		<input type="checkbox"/> Rain Prior to Inspection	<input type="checkbox"/> Rain During Inspection	<input type="checkbox"/> Rain Expected
Time Since Last Rainfall (days/hrs):				
Anticipated Duration of Rainfall (days/hrs):				
Construction Phase:		<input type="checkbox"/> Initial	<input type="checkbox"/> Clearing, Grubbing	<input type="checkbox"/> Rough Grading
		<input type="checkbox"/> Building Construction	<input type="checkbox"/> Finish Grading	<input type="checkbox"/> Final Stabilization
SELF-INSPECTION CHECKLIST				
INSPECTION QUESTIONS		N/A	YES	NO
Have all sensitive areas and vegetation onsite been marked and protected from damage prior to the start of land-disturbing activities?				
Are there modifications to planned ESC measures identified in this inspection?				
If yes, has the ESC Plan or SWPPP been modified to reflect this modification?				
Are any ESC BMPs failing or in need of repair?				
Are all truck tires and undersides of vehicles being washed as appropriate when leaving the site to prevent tracking of mud or sediment?				
Are all entrance/exits free of sediment or debris?				
Are all stormwater discharge points into receiving storm drains and catch basins free of silt and sediment?				
Are borrow areas and temporary stockpiles protected with appropriate ESC measures?				
Dust control measures in place during construction activity?				
Are erosion control materials (sandbags, sediment fences, etc.) stored and available on site?				
Are all waste materials, demolition debris, hazardous materials, and hazardous waste properly stored, handled and disposed of?				
Is the washout area properly used and maintained?				
Is there evidence of vehicles and equipment not using the washout area?				

INSPECTION QUESTIONS (CONTINUED)		N/A	YES	NO	NOTES
Is there evidence of improperly stored trash/debris or infrequent removal?					
Is there evidence of any unnoticed discharge or spill incident?					
Have all uncontrolled discharges or spill incidences, if any, been cleaned up properly?					
RAINY SEASON CHECKLIST	Are all paved areas clear of sediment and debris?				
	Are sandbags stockpiled and/or placed on-site at the appropriate plan-designated areas?				
	Have sandbags or other erosion control measure been implemented to control runoff?				
	Is this inspection related to emergency work during a rainstorm?				
	Are sandbags, or other measures, clear of trapped sediment?				
REQUIRED ACTION(S)					
Describe <u>actions required</u> to address deficiencies and indicate <u>date</u> by which compliance must be achieved:					
<div>Were deficiencies from previous self-inspections addressed?<div><div><input type="checkbox"/> Yes</div><div><input type="checkbox"/> No</div></div>Identify actions performed:<div><div><input type="checkbox"/> No</div><div><input type="checkbox"/> Yes</div></div>Identify actions to be performed and action plan to address:</div>					
CERTIFICATION					
Representative's signature				Date:	